REMARKS

The Applicants have considered the Final Office Action mailed on March 1, 2007, and the cited references.

Claims 2, 4-5, 7-22, and 24-30 were pending in the application, of which Claims 7, 12, 19, 24-27, and 30 are independent claims. Claims 24-26 and 30 have been withdrawn from consideration. Claims 2, 7, 10-13, 27-29 were rejected under 35 U.S.C. § 102 and Claims 4-5, 8-9, 14-16, and 19-22 were rejected under 35 U.S.C. § 103. In response, certain claims have been amended. A Request for Continued Examination (RCE) is being filed concurrently with this Amendment.

The claims, as now amended, clarify the subject matter for which a patent is sought. Unless stated otherwise, the amendments should not be considered acquiescence to the outstanding rejections.

Reconsideration and further examination are respectfully requested.

Claim Rejections Under Section 102

Claims 2, 7, 10-13, 27-29 were rejected under 35 USC § 102(b) as being anticipated by Carter (U.S. 5,360,000). In response, certain claims have been amended to clarify the inventive subject matter.

The Applicants' Specification discloses a pneumatic near-balanced differential pressure valve. As described with reference to FIG. 4, the operation of the valve is determined by the position of a diaphragm. When closed, the diaphragm is seated against a nozzle or end of a gas passageway, which is pressured in the steady-state condition. The opposite side of diaphragm interfaces with a control chamber, such as a timing gas chamber.

The diaphragm is responsive to the pressure in the control chamber. The pressure in the control chamber cycles between being pressurized and having a reduced pressure. In the normal states, the control chamber is pressurized until triggered to begin depressurizing. When the control chamber is pressurized, the diaphragm closes the gas passageway.

The control chamber begins losing pressure in response to an inhalation breath. As the pressure in the control chamber is reduced, the pressure in the gas passageway overcomes the pressure exerted by the control chamber and the valve opens to allow gas to flow from the gas passageway and exit the valve. Because the gas should be delivered at the beginning of the breath so as to reach the lungs, the valve is very sensitive to the pressure in the control chamber. The Applicants describe a pneumatic valve that relies on near-balanced pressure and does not require bias springs or other mechanical assistance to release the diaphragm from the nozzle.

In contrast, Carter discusses a pneumatic demand valve that requires a bias spring. The operation of the Carter valve is discussed with reference to Figs. 5 and 6. In Carter's device "it is necessary to position bias spring 118a in surrounding relationship to the annular wall 120a so as to exert an upward biasing force against slave diaphragm 114a." (Col. 6, ll. 43-46 (emphasis added).) Without the bias spring (118a), the Carter device would not function correctly, if at all, because Carter's diaphragm may never unseat from the nozzle head in time to deliver the gas to the patient before the chamber is repressurized.

Indeed, by requiring a necessary bias spring Carter teaches away from the claimed invention. If Carter understood that a suitable device could be made without a bias spring, Carter would not have stated that the bias spring was necessary. As taught by the Applicants, a demand valve can be made without a bias spring.

Furthermore, the Applicants traverse the assertions in the Office Action that the size of the nozzle and the forces are a mere design choice based on some predetermined parameters suggested by Carter. Carter does not suggest any design parameters for the nozzle or diaphragm. Those with knowledge of Carter would simply chose a convenient nozzle diameter from known and commercially-available nozzles and apply a bias spring to balance the forces. In comparison, the Applicants have not chosen a nozzle; they have fabricated a nozzle to specific dimensions.

As particularly described and claimed by the Applicants, the size of the interface between the nozzle and the diaphragm is computed so as to exert sufficient force on the diaphragm to unseat the diaphragm in response to a reduction in pressure in the control chamber, without

requiring mechanical assistance. This aspect of the invention is disclosed at least on page 11, lines 4-7 of the Applicants' Specification as originally filed. Because Carter offers no such teachings, the amendments to the claims should not be considered an acquiescence to the rejections, and the Applicants reserve the right to seek the subject matter in a later application.

Reconsideration of the rejections under 35 U.S.C. § 102 is respectfully requested.

Claim Rejection Under Section 103

Claims 4-5, 8-9, 14-16, and 19-22 were rejected under 35 USC § 103(a) as being unpatentable over Carter (U.S. 5,360,000) in view of Danon (U.S. 5,348,001). Those rejections are traversed.

The Applicants describe and claim a gas delivery valve that includes a filter element in the gas delivery path. In other words, gas passes through the filter element before exiting the valve. In particular, the filter element is disposed in a nozzle that interfaces with a diaphragm in a differential pressure valve. The use of a filter in an oversized nozzle was found to be advantageous in the Applicants' device, as described in the Specification.

The Office Action cites Danon as employing a sintered bronze filter. The Office fails to note, however, that the Danon filter is disposed in a gas inlet to the valve. The use of a filter element to keep contaminants out of a gas valve is well-know in the prior art. Danon does not discuss a filter in the exit flow of gas or suggest a need for such a filter.

The use of a filter element within a gas delivery passageway is not believed to be known in the prior art. Neither Carter nor Danon, either alone or in combination, suggest otherwise. Furthermore, the use of a filter element interior to a differential pressure valve is also not suggested by Carter or Danon, either alone or in combination.

The "filter element" in the claimed invention does not solve a problem with contaminants. Instead, the filter element was found to reduce whistling caused by air flow through the nozzle. Indeed, with a filter at the gas inlet, as known in the prior art, subsequent filters at a nozzle in the gas flow path to filter contaminants would not be required and neither reference suggests otherwise. Nor was there any motivation in art to add an internal filter

element. Regardless of purpose, the claimed structure is patentably distinguishable over the cited references.

Independent Claim 19 (and 26) recite "a nozzle disposed in the gas flow path, wherein the gas flow through the nozzle exits through a filter element." The dependent claims incorporate the amended claim limitations from the independent claims. As such, Claims 4-5, 8-9, 14-16, and 19-22 are distinguishable over Carter in view of Danon, and are in condition for allowance.

Reconsideration of the rejections under 35 U.S.C. § 103 is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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